

Climaveneta Technical Documentation  
i-FX-W\_(1+i)\_1402\_4652\_201802\_ML

# REGULATION (EU) N. 2016/2281 FOR COMFORT CHILLERS

Ecodesign requirements for cooling products

WATER COOLED CHILLERS

**i-FX-W (1+i) 1402 - 4652**

Cooling Capacity Range 487 - 1632 [kW] - (EN14511 VALUE)  
Nominal Cooling Capacity at TdesignC Range 487 - 1632 [kW]



**1. REGULATION (EU) N. 2016/2281 FOR COMFORT CHILLERS**

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# 1. REGULATION (EU) N. 2016/2281 FOR COMFORT CHILLERS

## 1.1 Scope of the document

This document is compliant with the Commission Regulation (EU) N. 2016/2281 regarding "REQUIREMENTS FOR PRODUCT INFORMATION" (Annex II, Point 5). In particular, it deals with comfort chillers and contains information required by Table 10 of the above-mentioned regulation, which is entitled "Information requirements for comfort chillers".

## 1.2 REGULATION (EU) N. 2016/2281 description

The COMMISSION REGULATION (EU) N. 2016/2281 of 30 November 2016, implementing Directive 2009/125/EC of the European Parliament and of the Council, establishes eco-design requirements for the placing on the market and/or putting into service of: air heating products with a rated heating capacity which does not exceed 1MW, cooling products and high temperature process chillers with a rated cooling capacity which do not exceed 2 MW, and all fan coil units. All these energy-related products are defined in Article 2 of the Regulation in question.

## 1.3 Description of the data declared by Mitsubishi Electric Hydronics & IT Cooling Systems

- Comfort chiller: a cooling product designed with the aim of attaining and maintaining the desired indoor temperature for the thermal comfort of human beings, whose evaporator extracts heat from a water-based cooling system designed to operate at leaving chilled water temperatures greater than or equal to +2°C.
- Rated cooling capacity (Prated,c): the cooling capacity of a comfort chiller when providing space cooling at standard rating conditions, expressed in kW.
- Low temperature application: application where the comfort chiller delivers its declared capacity for cooling at an indoor heat exchanger outlet temperature of 7°C.
- Medium temperature application: application where the comfort chiller delivers its declared capacity for cooling at an indoor heat exchanger outlet temperature of 18°C.
- Seasonal energy efficiency of the space cooling ( $\eta_{s,c}$ ): ratio between the space cooling demand pertaining to the designated cooling season, and the annual energy consumption required to meet this demand, expressed in %.
- Seasonal Energy Efficiency Ratio (SEER): the overall energy efficiency ratio of the comfort chiller, representative for the cooling season, calculated as the reference annual cooling demand divided by the annual energy consumption for cooling.
- Degradation coefficient for chillers: measure of efficiency loss due to cycling of the chiller.
- Off mode: a condition in which the chiller is connected to the main power source and is not providing any function.
- Thermostat off-mode: condition corresponding to the hours with no cooling load and activated cooling function, whereby the cooling function is switched on but the chiller is not operational.
- Crankcase heater mode: condition in which a heating device is activated to avoid the refrigerant migrating to the compressor so as to limit the refrigerant concentration in oil when the compressor is started.
- Standby mode: condition where the chiller is connected to the mains power source and depends on energy input from the mains power source to work as intended. The unit provides only the following functions, which may persist for an indefinite time: reactivation function, or reactivation function and only an indication of enabled reactivation function, and/or information or status display.
- Capacity control: the ability of a chiller to change its cooling capacity by changing the volumetric flow rate of at least one of the fluids needed to operate the refrigeration cycle.
- Sound power level (LWA): the A-weighted sound power level, indoors and/or outdoors, expressed in dB.
- Global warming potential (GWP) of the refrigerant: the 100-year climatic warming potential of one kilogram of a greenhouse gas relative to one kilogram of dioxide (CO<sub>2</sub>).

## 2. CLIMAVENETA CONTENTS UNIT

### 2.1 Table index

WATER COOLED CHILLERS

#### i-FX-W (1+i) 1402 - 4652

Cooling Capacity Range 487 - 1632 [kW]

Nominal Cooling Capacity at TdesignC Range 487 - 1632 [kW]

| Units        | Version | Size |      |      |      |      | Pag. |
|--------------|---------|------|------|------|------|------|------|
| i-FX-W (1+i) | CA      | 1402 | 1752 | 1902 | 2152 | 2602 | 5    |
|              |         | 3002 | 3402 | 3852 | 4252 | 4652 |      |

| i-FX-W (1+i) /CA /1402  |   |            |                                      |
|---|---|------------|--------------------------------------|
| Outdoor side heat exchanger of chiller  | air or water/brine  |            | Water/brine                          |
| Indoor side heat exchanger chiller  | water   |            | Water                                |
| Type  | compressor driven vapour compression or sorption process                                      |            | Compressor driven vapour compression |
| Driver of compressor  | electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine |            | Electric motor                       |
| Rated cooling capacity  | Prated,c  | [kW]       | 486,7                                |
| Seasonal energy efficiency of the space cooling   | $\eta_{s,c}$  | [%]        | 284,0                                |
| Declared cooling capacity for part load at given outdoor temperatures Tj  |   |            |                                      |
| Declared cooling capacity at given outdoor temperatures Tj = 35°C   | Pdc   | [kW]       | 487                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 30°C   | Pdc   | [kW]       | 359                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 25°C   | Pdc   | [kW]       | 231                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 20°C   | Pdc   | [kW]       | 146                                  |
| Degradation coefficient for chillers  | Cdc   |            | 0,9                                  |
| Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj |   |            |                                      |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C  | EERd  | [%]        | 5,37                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C  | EERd  | [%]        | 6,74                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C  | EERd  | [%]        | 9,09                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C  | EERd  | [%]        | 9,53                                 |
| Power consumption in modes other than "active mode"   |   |            |                                      |
| Off mode  | POFF  | [kW]       | 0,000                                |
| Thermostat-off mode   | PTO   | [kW]       | 2,978                                |
| Crankcase heater mode   | PCK   | [kW]       | 0,493                                |
| Standby mode  | PSB   | [kW]       | 0,493                                |
| Other items   |   |            |                                      |
| Capacity control  | fixed/staged/variable   |            | Staged                               |
| Sound power level, outdoor  | LWA   | [dB(A)]    | 98,0                                 |
| GWP of the refrigerant  |   | [Kg CO2eq] | 1430                                 |
| For air-to-water comfort chillers: air flow rate, outdoor measured  |   | [m³/h]     | -                                    |
| For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger  |   | [m³/h]     | 99                                   |
| Standard rating conditions used:  | low temperature application/medium temperature application                                    |            | Low temperature application          |

Contact details: Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A., via L. Seitz 47 - 31100 Treviso - Italy

| i-FX-W (1+i) /CA /1752  |   |            |                                      |
|---|---|------------|--------------------------------------|
| Outdoor side heat exchanger of chiller  | air or water/brine  |            | Water/brine                          |
| Indoor side heat exchanger chiller  | water   |            | Water                                |
| Type  | compressor driven vapour compression or sorption process                                      |            | Compressor driven vapour compression |
| Driver of compressor  | electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine |            | Electric motor                       |
| Rated cooling capacity  | Prated,c  | [kW]       | 608,1                                |
| Seasonal energy efficiency of the space cooling   | $\eta_{s,c}$  | [%]        | 282,0                                |
| Declared cooling capacity for part load at given outdoor temperatures Tj  |   |            |                                      |
| Declared cooling capacity at given outdoor temperatures Tj = 35°C   | Pdc   | [kW]       | 608                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 30°C   | Pdc   | [kW]       | 448                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 25°C   | Pdc   | [kW]       | 288                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 20°C   | Pdc   | [kW]       | 176                                  |
| Degradation coefficient for chillers  | Cdc   |            | 0,9                                  |
| Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj |   |            |                                      |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C  | EERd  | [%]        | 5,49                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C  | EERd  | [%]        | 6,73                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C  | EERd  | [%]        | 9,02                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C  | EERd  | [%]        | 9,44                                 |
| Power consumption in modes other than "active mode"   |   |            |                                      |
| Off mode  | POFF  | [kW]       | 0,000                                |
| Thermostat-off mode   | PTO   | [kW]       | 3,673                                |
| Crankcase heater mode   | PCK   | [kW]       | 0,705                                |
| Standby mode  | PSB   | [kW]       | 0,705                                |
| Other items   |   |            |                                      |
| Capacity control  | fixed/staged/variable   |            | Staged                               |
| Sound power level, outdoor  | LWA   | [dB(A)]    | 98,0                                 |
| GWP of the refrigerant  |   | [Kg CO2eq] | 1430                                 |
| For air-to-water comfort chillers: air flow rate, outdoor measured  |   | [m³/h]     | -                                    |
| For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger  |   | [m³/h]     | 123                                  |
| Standard rating conditions used:  | low temperature application/medium temperature application                                    |            | Low temperature application          |

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| i-FX-W (1+i) /CA /1902  |   |            |                                      |
|---|---|------------|--------------------------------------|
| Outdoor side heat exchanger of chiller  | air or water/brine  |            | Water/brine                          |
| Indoor side heat exchanger chiller  | water   |            | Water                                |
| Type  | compressor driven vapour compression or sorption process                                      |            | Compressor driven vapour compression |
| Driver of compressor  | electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine |            | Electric motor                       |
| Rated cooling capacity  | Prated,c  | [kW]       | 659,4                                |
| Seasonal energy efficiency of the space cooling   | $\eta_{s,c}$  | [%]        | 279,0                                |
| Declared cooling capacity for part load at given outdoor temperatures Tj  |   |            |                                      |
| Declared cooling capacity at given outdoor temperatures Tj = 35°C   | Pdc   | [kW]       | 659                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 30°C   | Pdc   | [kW]       | 486                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 25°C   | Pdc   | [kW]       | 312                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 20°C   | Pdc   | [kW]       | 195                                  |
| Degradation coefficient for chillers  | Cdc   |            | 0,9                                  |
| Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj |   |            |                                      |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C  | EERd  | [%]        | 5,48                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C  | EERd  | [%]        | 6,74                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C  | EERd  | [%]        | 8,90                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C  | EERd  | [%]        | 9,30                                 |
| Power consumption in modes other than "active mode"   |   |            |                                      |
| Off mode  | POFF  | [kW]       | 0,000                                |
| Thermostat-off mode   | PTO   | [kW]       | 4,209                                |
| Crankcase heater mode   | PCK   | [kW]       | 0,775                                |
| Standby mode  | PSB   | [kW]       | 0,775                                |
| Other items   |   |            |                                      |
| Capacity control  | fixed/staged/variable   |            | Staged                               |
| Sound power level, outdoor  | LWA   | [dB(A)]    | 98,0                                 |
| GWP of the refrigerant  |   | [Kg CO2eq] | 1430                                 |
| For air-to-water comfort chillers: air flow rate, outdoor measured  |   | [m³/h]     | -                                    |
| For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger  |   | [m³/h]     | 133                                  |
| Standard rating conditions used:  | low temperature application/medium temperature application                                    |            | Low temperature application          |

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| i-FX-W (1+i) /CA /2152  |   |            |                                      |
|---|---|------------|--------------------------------------|
| Outdoor side heat exchanger of chiller  | air or water/brine  |            | Water/brine                          |
| Indoor side heat exchanger chiller  | water   |            | Water                                |
| Type  | compressor driven vapour compression or sorption process                                      |            | Compressor driven vapour compression |
| Driver of compressor  | electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine |            | Electric motor                       |
| Rated cooling capacity  | Prated,c  | [kW]       | 750,0                                |
| Seasonal energy efficiency of the space cooling   | $\eta_{s,c}$  | [%]        | 284,0                                |
| Declared cooling capacity for part load at given outdoor temperatures Tj  |   |            |                                      |
| Declared cooling capacity at given outdoor temperatures Tj = 35°C   | Pdc   | [kW]       | 750                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 30°C   | Pdc   | [kW]       | 553                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 25°C   | Pdc   | [kW]       | 355                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 20°C   | Pdc   | [kW]       | 223                                  |
| Degradation coefficient for chillers  | Cdc   |            | 0,9                                  |
| Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj |   |            |                                      |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C  | EERd  | [%]        | 5,47                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C  | EERd  | [%]        | 6,79                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C  | EERd  | [%]        | 9,06                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C  | EERd  | [%]        | 9,53                                 |
| Power consumption in modes other than "active mode"   |   |            |                                      |
| Off mode  | POFF  | [kW]       | 0,000                                |
| Thermostat-off mode   | PTO   | [kW]       | 4,656                                |
| Crankcase heater mode   | PCK   | [kW]       | 0,775                                |
| Standby mode  | PSB   | [kW]       | 0,775                                |
| Other items   |   |            |                                      |
| Capacity control  | fixed/staged/variable   |            | Staged                               |
| Sound power level, outdoor  | LWA   | [dB(A)]    | 100,0                                |
| GWP of the refrigerant  |   | [Kg CO2eq] | 1430                                 |
| For air-to-water comfort chillers: air flow rate, outdoor measured  |   | [m³/h]     | -                                    |
| For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger  |   | [m³/h]     | 152                                  |
| Standard rating conditions used:  | low temperature application/medium temperature application                                    |            | Low temperature application          |

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| i-FX-W (1+i) /CA /2602  |   |            |                                      |
|---|---|------------|--------------------------------------|
| Outdoor side heat exchanger of chiller  | air or water/brine  |            | Water/brine                          |
| Indoor side heat exchanger chiller  | water   |            | Water                                |
| Type  | compressor driven vapour compression or sorption process                                      |            | Compressor driven vapour compression |
| Driver of compressor  | electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine |            | Electric motor                       |
| Rated cooling capacity  | Prated,c  | [kW]       | 914,3                                |
| Seasonal energy efficiency of the space cooling   | $\eta_{s,c}$  | [%]        | 289,0                                |
| Declared cooling capacity for part load at given outdoor temperatures Tj  |   |            |                                      |
| Declared cooling capacity at given outdoor temperatures Tj = 35°C   | Pdc   | [kW]       | 914                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 30°C   | Pdc   | [kW]       | 674                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 25°C   | Pdc   | [kW]       | 433                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 20°C   | Pdc   | [kW]       | 273                                  |
| Degradation coefficient for chillers  | Cdc   |            | 0,9                                  |
| Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj |   |            |                                      |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C  | EERd  | [%]        | 5,48                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C  | EERd  | [%]        | 6,69                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C  | EERd  | [%]        | 9,28                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C  | EERd  | [%]        | 9,67                                 |
| Power consumption in modes other than "active mode"   |   |            |                                      |
| Off mode  | POFF  | [kW]       | 0,000                                |
| Thermostat-off mode   | PTO   | [kW]       | 5,564                                |
| Crankcase heater mode   | PCK   | [kW]       | 0,778                                |
| Standby mode  | PSB   | [kW]       | 0,778                                |
| Other items   |   |            |                                      |
| Capacity control  | fixed/staged/variable   |            | Staged                               |
| Sound power level, outdoor  | LWA   | [dB(A)]    | 100,0                                |
| GWP of the refrigerant  |   | [Kg CO2eq] | 1430                                 |
| For air-to-water comfort chillers: air flow rate, outdoor measured  |   | [m³/h]     | -                                    |
| For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger  |   | [m³/h]     | 185                                  |
| Standard rating conditions used:  | low temperature application/medium temperature application                                    |            | Low temperature application          |

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| i-FX-W (1+i) /CA /3002  |   |            |                                      |
|---|---|------------|--------------------------------------|
| Outdoor side heat exchanger of chiller  | air or water/brine  |            | Water/brine                          |
| Indoor side heat exchanger chiller  | water   |            | Water                                |
| Type  | compressor driven vapour compression or sorption process                                      |            | Compressor driven vapour compression |
| Driver of compressor  | electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine |            | Electric motor                       |
| Rated cooling capacity  | Prated,c  | [kW]       | 1046,0                               |
| Seasonal energy efficiency of the space cooling   | $\eta_{s,c}$  | [%]        | 295,0                                |
| Declared cooling capacity for part load at given outdoor temperatures Tj  |   |            |                                      |
| Declared cooling capacity at given outdoor temperatures Tj = 35°C   | Pdc   | [kW]       | 1046                                 |
| Declared cooling capacity at given outdoor temperatures Tj = 30°C   | Pdc   | [kW]       | 771                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 25°C   | Pdc   | [kW]       | 495                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 20°C   | Pdc   | [kW]       | 312                                  |
| Degradation coefficient for chillers  | Cdc   |            | 0,9                                  |
| Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj |   |            |                                      |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C  | EERd  | [%]        | 5,52                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C  | EERd  | [%]        | 6,93                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C  | EERd  | [%]        | 9,19                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C  | EERd  | [%]        | 9,80                                 |
| Power consumption in modes other than "active mode"   |   |            |                                      |
| Off mode  | POFF  | [kW]       | 0,000                                |
| Thermostat-off mode   | PTO   | [kW]       | 5,599                                |
| Crankcase heater mode   | PCK   | [kW]       | 0,778                                |
| Standby mode  | PSB   | [kW]       | 0,778                                |
| Other items   |   |            |                                      |
| Capacity control  | fixed/staged/variable   |            | Staged                               |
| Sound power level, outdoor  | LWA   | [dB(A)]    | 100,0                                |
| GWP of the refrigerant  |   | [Kg CO2eq] | 1430                                 |
| For air-to-water comfort chillers: air flow rate, outdoor measured  |   | [m³/h]     | -                                    |
| For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger  |   | [m³/h]     | 212                                  |
| Standard rating conditions used:  | low temperature application/medium temperature application                                    |            | Low temperature application          |

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| i-FX-W (1+i) /CA /3402  |   |            |                                      |
|---|---|------------|--------------------------------------|
| Outdoor side heat exchanger of chiller  | air or water/brine  |            | Water/brine                          |
| Indoor side heat exchanger chiller  | water   |            | Water                                |
| Type  | compressor driven vapour compression or sorption process                                      |            | Compressor driven vapour compression |
| Driver of compressor  | electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine |            | Electric motor                       |
| Rated cooling capacity  | Prated,c  | [kW]       | 1186,0                               |
| Seasonal energy efficiency of the space cooling   | $\eta_{s,c}$  | [%]        | 294,0                                |
| Declared cooling capacity for part load at given outdoor temperatures Tj  |   |            |                                      |
| Declared cooling capacity at given outdoor temperatures Tj = 35°C   | Pdc   | [kW]       | 1186                                 |
| Declared cooling capacity at given outdoor temperatures Tj = 30°C   | Pdc   | [kW]       | 874                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 25°C   | Pdc   | [kW]       | 562                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 20°C   | Pdc   | [kW]       | 353                                  |
| Degradation coefficient for chillers  | Cdc   |            | 0,9                                  |
| Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj |   |            |                                      |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C  | EERd  | [%]        | 5,58                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C  | EERd  | [%]        | 6,89                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C  | EERd  | [%]        | 9,04                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C  | EERd  | [%]        | 9,64                                 |
| Power consumption in modes other than "active mode"   |   |            |                                      |
| Off mode  | POFF  | [kW]       | 0,000                                |
| Thermostat-off mode   | PTO   | [kW]       | 6,105                                |
| Crankcase heater mode   | PCK   | [kW]       | 0,778                                |
| Standby mode  | PSB   | [kW]       | 0,778                                |
| Other items   |   |            |                                      |
| Capacity control  | fixed/staged/variable   |            | Staged                               |
| Sound power level, outdoor  | LWA   | [dB(A)]    | 100,0                                |
| GWP of the refrigerant  |   | [Kg CO2eq] | 1430                                 |
| For air-to-water comfort chillers: air flow rate, outdoor measured  |   | [m³/h]     | -                                    |
| For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger  |   | [m³/h]     | 240                                  |
| Standard rating conditions used:  | low temperature application/medium temperature application                                    |            | Low temperature application          |

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| i-FX-W (1+i) /CA /3852  |   |            |                                      |
|---|---|------------|--------------------------------------|
| Outdoor side heat exchanger of chiller  | air or water/brine  |            | Water/brine                          |
| Indoor side heat exchanger chiller  | water   |            | Water                                |
| Type  | compressor driven vapour compression or sorption process                                      |            | Compressor driven vapour compression |
| Driver of compressor  | electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine |            | Electric motor                       |
| Rated cooling capacity  | Prated,c  | [kW]       | 1348,0                               |
| Seasonal energy efficiency of the space cooling   | $\eta_{s,c}$  | [%]        | 299,0                                |
| Declared cooling capacity for part load at given outdoor temperatures Tj  |   |            |                                      |
| Declared cooling capacity at given outdoor temperatures Tj = 35°C   | Pdc   | [kW]       | 1348                                 |
| Declared cooling capacity at given outdoor temperatures Tj = 30°C   | Pdc   | [kW]       | 993                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 25°C   | Pdc   | [kW]       | 639                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 20°C   | Pdc   | [kW]       | 402                                  |
| Degradation coefficient for chillers  | Cdc   |            | 0,9                                  |
| Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj |   |            |                                      |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C  | EERd  | [%]        | 5,62                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C  | EERd  | [%]        | 6,95                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C  | EERd  | [%]        | 9,16                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C  | EERd  | [%]        | 9,78                                 |
| Power consumption in modes other than "active mode"   |   |            |                                      |
| Off mode  | POFF  | [kW]       | 0,000                                |
| Thermostat-off mode   | PTO   | [kW]       | 6,370                                |
| Crankcase heater mode   | PCK   | [kW]       | 0,838                                |
| Standby mode  | PSB   | [kW]       | 0,838                                |
| Other items   |   |            |                                      |
| Capacity control  | fixed/staged/variable   |            | Staged                               |
| Sound power level, outdoor  | LWA   | [dB(A)]    | 100,0                                |
| GWP of the refrigerant  |   | [Kg CO2eq] | 1430                                 |
| For air-to-water comfort chillers: air flow rate, outdoor measured  |   | [m³/h]     | -                                    |
| For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger  |   | [m³/h]     | 272                                  |
| Standard rating conditions used:  | low temperature application/medium temperature application                                    |            | Low temperature application          |

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| i-FX-W (1+i) /CA /4252  |   |            |                                      |
|---|---|------------|--------------------------------------|
| Outdoor side heat exchanger of chiller  | air or water/brine  |            | Water/brine                          |
| Indoor side heat exchanger chiller  | water   |            | Water                                |
| Type  | compressor driven vapour compression or sorption process                                      |            | Compressor driven vapour compression |
| Driver of compressor  | electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine |            | Electric motor                       |
| Rated cooling capacity  | Prated,c  | [kW]       | 1482,0                               |
| Seasonal energy efficiency of the space cooling   | $\eta_{s,c}$  | [%]        | 287,0                                |
| Declared cooling capacity for part load at given outdoor temperatures Tj  |   |            |                                      |
| Declared cooling capacity at given outdoor temperatures Tj = 35°C   | Pdc   | [kW]       | 1482                                 |
| Declared cooling capacity at given outdoor temperatures Tj = 30°C   | Pdc   | [kW]       | 1092                                 |
| Declared cooling capacity at given outdoor temperatures Tj = 25°C   | Pdc   | [kW]       | 702                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 20°C   | Pdc   | [kW]       | 401                                  |
| Degradation coefficient for chillers  | Cdc   |            | 0,9                                  |
| Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj |   |            |                                      |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C  | EERd  | [%]        | 5,52                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C  | EERd  | [%]        | 6,66                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C  | EERd  | [%]        | 8,80                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C  | EERd  | [%]        | 9,26                                 |
| Power consumption in modes other than "active mode"   |   |            |                                      |
| Off mode  | POFF  | [kW]       | 0,000                                |
| Thermostat-off mode   | PTO   | [kW]       | 8,170                                |
| Crankcase heater mode   | PCK   | [kW]       | 0,838                                |
| Standby mode  | PSB   | [kW]       | 0,838                                |
| Other items   |   |            |                                      |
| Capacity control  | fixed/staged/variable   |            | Staged                               |
| Sound power level, outdoor  | LWA   | [dB(A)]    | 102,0                                |
| GWP of the refrigerant  |   | [Kg CO2eq] | 1430                                 |
| For air-to-water comfort chillers: air flow rate, outdoor measured  |   | [m³/h]     | -                                    |
| For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger  |   | [m³/h]     | 300                                  |
| Standard rating conditions used:  | low temperature application/medium temperature application                                    |            | Low temperature application          |

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| i-FX-W (1+i) /CA /4652  |   |            |                                      |
|---|---|------------|--------------------------------------|
| Outdoor side heat exchanger of chiller  | air or water/brine  |            | Water/brine                          |
| Indoor side heat exchanger chiller  | water   |            | Water                                |
| Type  | compressor driven vapour compression or sorption process                                      |            | Compressor driven vapour compression |
| Driver of compressor  | electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine |            | Electric motor                       |
| Rated cooling capacity  | Prated,c  | [kW]       | 1632,0                               |
| Seasonal energy efficiency of the space cooling   | $\eta_{s,c}$  | [%]        | 289,0                                |
| Declared cooling capacity for part load at given outdoor temperatures Tj  |   |            |                                      |
| Declared cooling capacity at given outdoor temperatures Tj = 35°C   | Pdc   | [kW]       | 1632                                 |
| Declared cooling capacity at given outdoor temperatures Tj = 30°C   | Pdc   | [kW]       | 1203                                 |
| Declared cooling capacity at given outdoor temperatures Tj = 25°C   | Pdc   | [kW]       | 773                                  |
| Declared cooling capacity at given outdoor temperatures Tj = 20°C   | Pdc   | [kW]       | 482                                  |
| Degradation coefficient for chillers  | Cdc   |            | 0,9                                  |
| Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj |   |            |                                      |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C  | EERd  | [%]        | 5,47                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C  | EERd  | [%]        | 6,61                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C  | EERd  | [%]        | 8,96                                 |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C  | EERd  | [%]        | 9,48                                 |
| Power consumption in modes other than "active mode"   |   |            |                                      |
| Off mode  | POFF  | [kW]       | 0,000                                |
| Thermostat-off mode   | PTO   | [kW]       | 8,931                                |
| Crankcase heater mode   | PCK   | [kW]       | 0,838                                |
| Standby mode  | PSB   | [kW]       | 0,838                                |
| Other items   |   |            |                                      |
| Capacity control  | fixed/staged/variable   |            | Staged                               |
| Sound power level, outdoor  | LWA   | [dB(A)]    | 102,0                                |
| GWP of the refrigerant  |   | [Kg CO2eq] | 1430                                 |
| For air-to-water comfort chillers: air flow rate, outdoor measured  |   | [m³/h]     | -                                    |
| For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger  |   | [m³/h]     | 331                                  |
| Standard rating conditions used:  | low temperature application/medium temperature application                                    |            | Low temperature application          |

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| ENGLISH  | ITALIANO   | FRANCAISE  | DEUTSCH  | ESPAÑOL   |
|--|--|--|--|---|
| Outdoor side heat exchanger of chiller   | Refrigeratore a scambiatore di calore esterno  | Echangeur de chaleur côté extérieur du refroidisseur   | Wärmetauscher des Kühlers (außen)  | Intercambiador de calor de exterior de la enfriadora  |
| Indoor side heat exchanger chiller   | Refrigeratore a scambiatore di calore interno  | Echangeur de chaleur côté intérieur du refroidisseur   | Wärmetauscher des Kühlers (innen)  | Intercambiador de calor de interior de la enfriadora  |
| Type   | Tipo   | Type   | Bauart   | Tipo  |
| Driver of compressor   | Tipo di azionamento del compressore  | Type d'entraînement du compresseur   | Antrieb des Verdichters  | Accionamiento del compresor   |
| Rated cooling capacity   | Capacità di raffreddamento nominale  | Puissance frigorifique nominale  | Nennkühlleistung   | Potencia nominal de refrigeración   |
| Seasonal energy efficiency of the space cooling  | Efficienza energetica stagionale del raffreddamento d'ambiente   | Efficacité énergétique saisonnière pour le refroidissement des locaux  | Raumkühlungs-Jahresnutzungsgrad  | Eficiencia energética estacional de refrigeración de espacios   |
| <b>Declared cooling capacity for part load at given outdoor temperatures Tj</b>  | <b>Capacità di raffreddamento dichiarata a carico parziale a temperature esterne date Tj</b>   | <b>Puissance frigorifique déclarée à charge partielle pour des températures extérieures données Tj</b>   | <b>Angegebene Kühlleistung bei Teillast und bestimmten Außentemperaturen Tj</b>  | <b>Potencia de refrigeración declarada para carga parcial a las temperaturas exteriores dadas Tj</b>  |
| Declared cooling capacity at given outdoor temperatures Tj = 35°C  | Capacità di raffreddamento dichiarata a temperatura esterna Tj = 35°C  | Puissance frigorifique déclarée à la température extérieure Tj = 35°C  | Angegebene Kühlleistung bei Teillast und einer Außentemperatur Tj = 35°C   | Potencia de refrigeración declarada para carga parcial a la temperatura exterior Tj = 35°C  |
| Declared cooling capacity at given outdoor temperatures Tj = 30°C  | Capacità di raffreddamento dichiarata a temperatura esterna Tj = 30°C  | Puissance frigorifique déclarée à la température extérieure Tj = 30°C  | Angegebene Kühlleistung bei Teillast und einer Außentemperatur Tj = 30°C   | Potencia de refrigeración declarada para carga parcial a la temperatura exterior Tj = 30°C  |
| Declared cooling capacity at given outdoor temperatures Tj = 25°C  | Capacità di raffreddamento dichiarata a temperatura esterna Tj = 25°C  | Puissance frigorifique déclarée à la température extérieure Tj = 25°C  | Angegebene Kühlleistung bei Teillast und einer Außentemperatur Tj = 25°C   | Potencia de refrigeración declarada para carga parcial a la temperatura exterior Tj = 25°C  |
| Declared cooling capacity at given outdoor temperatures Tj = 20°C  | Capacità di raffreddamento dichiarata a temperatura esterna Tj = 20°C  | Puissance frigorifique déclarée à la température extérieure Tj = 20°C  | Angegebene Kühlleistung bei Teillast und einer Außentemperatur Tj = 20°C   | Potencia de refrigeración declarada para carga parcial a la temperatura exterior Tj = 20°C  |
| Degradation coefficient for chillers   | Coefficiente di degradazione per i refrigeratori   | Coefficient de dégradation pour les refroidisseurs   | Minderungsfaktor von Kühlern   | Coefficiente de degradación de las enfriadoras  |
| <b>Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj</b> | <b>Indice di efficienza energetica dichiarato o efficienza dell'uso del gas/fattore di energia ausiliaria a carico parziale alle temperature esterne date Tj</b> | <b>Coefficient d'efficacité énergétique déclaré ou rendement de la consommation de gaz/indice énergétique auxiliaire à charge partielle pour des températures extérieures données Tj</b> | <b>Angegebene Leistungszahl oder Gaswirkungsgrad/Hilfsenergiefaktor bei Teillast und bestimmten Außentemperaturen Tj</b> | <b>Factor de eficiencia energética declarado o eficiencia del uso de gas o factor de energía auxiliar para carga parcial a las temperaturas exteriores dadas Tj</b> |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C   | Indice di efficienza energetica dichiarato con temperatura esterna Tj = 35°C   | Coefficient d'efficacité énergétique déclaré à la température extérieure Tj = 35°C   | Angegebene Leistungszahl bei Teillast und einer Außentemperatur Tj = 35°C  | Factor de eficiencia energética declarado a la temperatura exterior Tj = 35°C   |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C   | Indice di efficienza energetica dichiarato con temperatura esterna Tj = 30°C   | Coefficient d'efficacité énergétique déclaré à la température extérieure Tj = 30°C   | Angegebene Leistungszahl bei Teillast und einer Außentemperatur Tj = 30°C  | Factor de eficiencia energética declarado a la temperatura exterior Tj = 30°C   |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C   | Indice di efficienza energetica dichiarato con temperatura esterna Tj = 25°C   | Coefficient d'efficacité énergétique déclaré à la température extérieure Tj = 25°C   | Angegebene Leistungszahl bei Teillast und einer Außentemperatur Tj = 25°C  | Factor de eficiencia energética declarado a la temperatura exterior Tj = 25°C   |
| Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C   | Indice di efficienza energetica dichiarato con temperatura esterna Tj = 20°C   | Coefficient d'efficacité énergétique déclaré à la température extérieure Tj = 20°C   | Angegebene Leistungszahl bei Teillast und einer Außentemperatur Tj = 20°C  | Factor de eficiencia energética declarado a la temperatura exterior Tj = 20°C   |
| <b>Power consumption in modes other than "active mode"</b>   | <b>Consumo di energia in modi diversi dal «modo attivo»</b>  | <b>Consommation d'énergie dans les modes autres que le mode actif</b>  | <b>Stromverbrauch in anderen Betriebsarten als dem „aktiven Betrieb“</b>   | <b>Consumo de energía en modos distintos del modo activo</b>  |
| Off mode   | Modo «spento»  | Mode arrêt   | AUS-Zustand  | Modo desactivado  |
| Thermostat-off mode  | Modo «termostato spento»   | Mode arrêt par thermostat  | Thermostat-AUS- Zustand  | Modo desactivado por termostato   |
| Crankcase heater mode  | Modo «riscaldamento del carter»  | Mode résistance de carter active   | Betriebszustand mit Kurbelwannenheizung  | Modo de calentador del cárter activado  |
| Standby mode   | Modo «stand-by»  | Mode veille  | Bereitschaftszustand   | Modo de espera  |
| <b>Other items</b>   | <b>Altri elementi</b>  | <b>Autres caractéristiques</b>   | <b>Sonstige Produktdaten</b>   | <b>Otros elementos</b>  |
| Capacity control   | Dispositivo di controllo della capacità  | Régulation de la puissance   | Leistungsregelung  | Control de la potencia  |
| Sound power level, outdoor   | Livello di potenza sonora esterno  | Niveau de puissance acoustique, à l'extérieur  | Schallleistungspegel, außen  | Nivel de potencia acústica (exterior)   |
| GWP of the refrigerant   | GWP del refrigerante   | PRP du fluide frigorigène  | Treibhausgaspotenzial des Kältemittels   | PCA del refrigerante  |
| For air-to-water comfort chillers: air flow rate, outdoor measured   | Per i refrigeratori d'ambiente aria-acqua: flusso d'aria, misurato all'esterno   | Pour les refroidisseurs de confort air-eau: débit d'air, mesuré à l'extérieur  | Bei Luft-Wasser- Komfortkühlern: Luftdurchsatz, außen gemessen   | Enfriadoras de confort aire-agua: caudal de aire (exterior)   |
| For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger   | Per i refrigeratori acqua/salamoia-acqua: flusso d'acqua o salamoia nominale, scambiatore di calore esterno  | Pour les refroidisseurs eau/eau glycolée-eau: débit nominal d'eau glycolée ou d'eau,   | Bei Wasser/Sole-Wasser-Kühlern: Wasser- oder Sole- Nenndurchsatz, Wärmetauscher außen                                    | Enfriadoras agua-agua/ salmuera-agua: caudal nominal de salmuera o agua, intercambiador de calor de exterior  |

| ENGLISH  | ITALIANO   | FRANCAISE   | DEUTSCH  | ESPAÑOL   |
|--|--|---|--|---|
| Standard rating conditions used:   | Condizioni nominali standard   | Conditions de performance   | Norm-Prüfbedingungen:  | Condiciones estándar utilizadas:  |
| Notes:   | Note:  | Remarques:  | Hinweise:  | Notas:  |
| The parameters are declared for application at medium temperature, except in the case of low temperature heat pumps. For low temperature heat pumps, the parameters are declared for application at low temperature. | I parametri sono dichiarati per l'applicazione a temperatura media, tranne per le pompe di calore a bassa temperatura. Per le pompe di calore a bassa temperatura, i parametri sono dichiarati per l'applicazione a bassa temperatura. | Les paramètres sont déclarés pour l'application à moyenne température, excepté pour les pompes à chaleur basse température. Pour les pompes à chaleur basse température, les paramètres sont déclarés pour l'application à basse température. | Die Parameter sind für eine Mitteltemperaturanwendung anzugeben, außer für Niedertemperatur-Wärmepumpen. Für Niedertemperatur-Wärmepumpen sind die Parameter für eine Niedertemperaturanwendung anzugeben. | Los parámetros se declararán para aplicaciones de media temperatura, excepto si se trata de bombas de calor de baja temperatura. En el caso de las bombas de calor de baja temperatura, los parámetros se declararán para aplicaciones de baja temperatura. |
| Unit in standard configuration/execution, without optional accessories.  | Unità in configurazione ed esecuzione standard, priva di accessori opzionali.  | Unité en configuration et exécution standard, sans accessoires optionnels.  | Gerät mit Standard-Konfiguration und -Ausführung, ohne wunschweises Zubehör.   | Unidad en configuración y ejecución estándar, sin accesorios opcionales.  |





for a greener tomorrow

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.



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